

10 CFR 50.90

NMP2L2799

May 24, 2022

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Nine Mile Point Nuclear Station, Unit 2
Renewed Facility Operating License No. NPF-69
NRC Docket No. 50-410

Subject: License Amendment Request – Revise Surveillance Requirements to Reduce
Excessive Fast Starting of Emergency Diesel Generators

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Constellation Energy Generation, LLC (CEG) requests an amendment to the Technical Specifications, Appendix A, of Renewed Facility Operating License No. NPF-69 for Nine Mile Point Nuclear Station, Unit 2 (NMP2).

The proposed amendment would revise the Surveillance Requirements (SR) associated with Technical Specifications (TS) Section 3.8.1, "AC Sources — Operating," to reduce the number of fast starts of the Emergency Diesel Generators (EDGs). SR 3.8.1.2 is revised to identify the "Start Test" requirements for the EDGs. In addition, a new SR will be created to identify the "Fast-Start" testing requirements for the EDGs. These changes follow the guidance of Generic Letter (GL) 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability."

Attachment 1 provides the Evaluation of Proposed Changes. Attachment 2 provides the Proposed TS Marked-Up Pages. Attachment 3 provides the proposed TS Bases marked-up pages. The TS Bases pages are being provided for information only.

The proposed changes have been reviewed by the NMP Plant Operations Review Committee in accordance with the requirements of the CEG Quality Assurance Program.

CEG requests approval of the proposed amendment by May 31, 2023. Once approved, the amendment shall be implemented within 60 days.

There are no regulatory commitments contained in this request.

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In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), CEG is notifying the State of New York of this application of license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

Should you have any questions concerning this submittal, please contact Ron Reynolds at (610) 765-5247.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 24th day of May 2022.

Respectfully,



David T. Gudger
Senior Manager, Licensing
Constellation Energy Generation, LLC

Attachments: 1) Evaluation of Proposed Changes
2) Proposed Technical Specifications Marked-Up Pages
3) Proposed Technical Specifications Bases Marked-Up Page

cc:	USNRC Regional Administrator, Region I	w/attachments
	USNRC Project Manager, NMP	w/attachments
	USNRC Senior Resident Inspector, NMP	w/attachments
	A. L. Peterson, NYSERDA	w/attachments

ATTACHMENT 1

License Amendment Request

Nine Mile Point Nuclear Station, Unit 2

Docket No. 50-410

EVALUATION OF PROPOSED CHANGES

SUBJECT: Revise Surveillance Requirements to Reduce Excessive Fast Starting of
Emergency Diesel Generators

1.0 SUMMARY DESCRIPTION

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1.0 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit or early site permit," Constellation Energy Generation, LLC (CEG) is requesting to amend Facility Operating License (FOL) No. NPF-69 for Nine Mile Point Nuclear Station, Unit 2 (NMP2).

The proposed amendment would revise the Surveillance Requirements (SR) associated with Technical Specifications (TS) Section 3.8.1, "AC Sources — Operating," to reduce the number of fast starts of the Emergency Diesel Generators (EDGs). SR 3.8.1.2 is revised to identify the "Start Test" testing requirements for the EDGs by removing and relocating the "Fast-Start" testing requirements into a new SR. These changes follow the guidance of Generic Letter (GL) 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," (Reference 6.1).

In addition, a footnote on TS page 3.8.1-6 that reads, "**Following return to OPERABILITY of the HPCS System, the past due Surveillance will be completed by January 18, 2019," will be deleted as that Surveillance was completed as part of the actions associated with Emergency License Amendment 174 for a one-time extension to the Completion Time for LCO 3.5.1, Required Action B.2.

CEG requests approval of the proposed changes. Once approved, the amendment shall be implemented within 60 days.

2.0 DETAILED DESCRIPTION

Industry experience, as well as industry and NRC-sponsored studies and correspondences over the years have indicated that EDGs are tested too often and that the frequency of surveillance testing can, and does, cause accelerated wear possibly leading to premature emergency diesel generator failures and reducing equipment reliability. Therefore, the proposed changes will implement the recommended testing approach and will bring NMP2 into alignment with NUREG-1434, Volumes 1 and 2, Revision 5 (References 6.2 and 6.3, respectively), including following the guidance of Regulatory Guide (RG) 1.9, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plants," Revision 3 (Reference 6.4).

The proposed change will revise NMP2 TS SR 3.8.1.2 to remove and relocate the "Fast-Start" test requirements for the EDGs into a separate SR. This proposed change will align NMP2 SR 3.8.1.2 with the "Start Test" described in Section 2.2.1 of Reference 6.4, and with SR 3.8.1.2 in Reference 6.2. The relocated "Fast-Start" testing requirements will be in a new SR (SR 3.8.1.19) and will align with the "Fast-Start" test as described in References 6.2 and 6.4.

SR 3.8.1.2 will be revised as follows:

Verify each required DG starts from
standby conditions and achieves steady
state voltage ≥ 3950 V and ≤ 4370 V and
frequency ≥ 58.8 Hz and ≤ 61.2 Hz.

Also, a second Note will be added that reads, "Performance of SR 3.8.1.19 satisfies this SR."

The frequency for this Surveillance Requirement will remain as described in accordance with the Surveillance Frequency Control Program (SFCP).

The new SR 3.8.1.19 will read as follows:

Verify each required DG starts from standby conditions and achieves:

- a. In ≤ 10 seconds, voltage ≥ 3950 V for Division 1 and 2 DGs and ≥ 3820 V for Division 3 DG, and frequency ≥ 58.8 Hz for Division 1 and 2 DGs and ≥ 58.0 Hz for Division 3 DG; and
- b. Steady state voltage ≥ 3950 V and ≤ 4370 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.

A Note will be added to the SR that reads, "All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading."

The frequency for this Surveillance Requirement will be in accordance with the SFCP.

The proposed changes in this License Amendment Request (LAR) to separate the "Start Test" from the "Fast-Start" test will optimize the EDG testing strategy to minimize stress and wear on the EDGs. A modification will be implemented under the 50.59 process to support the testing changes. Until the EDG modifications are in place, EDG testing will continue with manufacturer recommended start procedures as described in proposed Note 2 of TS SR 3.8.1.2.

In addition, a footnote on TS page 3.8.1-6 that reads, "**Following return to OPERABILITY of the HPCS System, the past due Surveillance will be completed by January 18, 2019," will be deleted as that Surveillance was completed as part of the actions associated with Emergency License Amendment 174 for a one-time extension to the Completion Time for LCO 3.5.1, Required Action B.2.

Attachment 2 provides the marked-up TS pages with the proposed changes indicated. Attachment 3 provides marked-up TS Bases pages with the proposed change indicated and are provided for information only.

3.0 TECHNICAL EVALUATION

Electrical Power Distribution System Design and Operation

The NMP2 Class 1E AC Electrical Power Distribution System AC sources consist of the offsite power sources and the onsite standby power sources (DGs). As required by 10 CFR 50, Appendix A, GDC 17, the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The Class 1E AC distribution system supplies electrical power to three divisional load groups, Divisions 1, 2, and 3, with each division powered by an independent Class 1E 4.16 kV emergency bus (refer to LCO 3.8.8, "Distribution Systems – Operating"). The Division 1 and 2 4.16 kV emergency buses each have one separate and independent offsite source of power. The Division 3 4.16 kV emergency bus can be supplied by either offsite source. Each 4.16 kV emergency bus has a dedicated onsite DG. The ESF systems of any two of the three divisions provide for the minimum safety functions necessary to shut down the unit and maintain it in a safe shutdown condition.

The primary AC Distribution System consists of three 4.16 Kv emergency buses that are supplied from the transmission system by two physically independent circuits. Each 4.16 kV emergency bus also has a dedicated onsite diesel generator (DG) source. The Division 1 and 3 4.16 kV emergency buses are normally supplied by the tertiary winding of reserve station service transformer 2RTX-XSR1A while the Division 2 4.16 kV emergency bus is normally supplied by the tertiary winding of reserve station service transformer 2RTX-XSR1B. Control power for the 4.16 kV breakers is supplied from the Class 1E batteries.

Each DG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage. This sequence must be accomplished within 13.20 seconds. The 13.20 second start time includes the Loss of Voltage – Time Delay Function Allowable Value specified in LCO 3.3.8.1. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals and must continue to operate until offsite power can be restored to the 4.16 kV emergency buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with engine hot and DG in standby with engine at ambient conditions. Additional DG capabilities must be demonstrated to meet required Surveillances, e.g., capability of the DG to revert to standby status on an ECCS signal while operating in parallel test mode. Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG operability.

TS Requirements

NMP2 TS SR 3.8.1, "AC Sources – Operating," SR 3.8.1.2 requires the EDGs to be periodically tested and currently includes both the "Start Test" and the "Fast-Start" testing requirements. This proposed change will separate the Surveillance Requirements and bring NMP2 TS into alignment with References 6.2 and 6.3, following the guidance of Reference 6.4.

Need for Proposed Changes

As stated in Section 2.0 above, industry experience, as well as industry and NRC-sponsored studies and correspondences over the years have indicated that emergency diesel generators are tested too often and that the frequency of surveillance testing can, and does, cause accelerated wear possibly leading to premature emergency diesel generator failures and reducing equipment reliability.

The proposed change to SR 3.8.1.2 would revise the SR to conform with SR 3.8.1.2 in References 6.2 and 6.3, as well as the description of a "Start Test" in Reference 6.4. Currently, the frequency of this SR in the NMP2 SFCP is every 31 days. This frequency remains unchanged in the SFCP by this proposed amendment.

A new SR will be created, SR 3.8.1.19, which will include the "Fast-Start" testing requirements, as well as the "Start Test" testing requirements. This SR will conform to SR 3.8.1.7 in NUREG 1434 (Reference 6.2), as well as the description for the "Start Test" and the "Fast-Start" test described in RG 1.9 (Reference 6.4). The SR will be added to the SFCP with a frequency of 184 days and controlled in accordance with SFCP program requirements. A Note will be added to SR 3.8.1.2 that will allow the performance of SR 3.8.1.19 to satisfy SR 3.8.1.2.

Therefore, the changes to these Surveillance Requirements using the above stated NRC guidance are justified.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The following NRC requirements and guidance documents are applicable to the review of the proposed changes.

Preoperational and periodic testing of the EDGs is performed in accordance with provisions of RG 1.9, RG 1.108, and RG 1.137. The standby diesel generators have a complete exercise mode for this purpose, including manual starting, manual synchronizing with the offsite power sources, and manual loading. The standby diesel generators are capable of operating in parallel with the offsite power sources.

The proposed changes in this License Amendment Request (LAR) to separate the "Start Test" from the "Fast-Start" test will optimize the EDG testing strategy to minimize wear and tear on the EDGs. A modification will be implemented under the 50.59 process to support the testing changes. Until the EDG modifications are in place, EDG testing will continue with manufacturer recommended start procedures as defined in proposed Note 2 of TS SR 3.8.1.2.

4.2 Precedent

The NRC has approved similar license amendment requests to reduce the "Fast-Start" testing frequency of EDGs, as included in the following:

1. Letter from G. Wunder (NRC Project Manager) to T. Feigenbaum (Ex. Vice President and CNO, North Atlantic Energy Corporation), "Seabrook Station, Unit No. 1-Issuance of Amendment RE: Changes to Electrical Power Systems Technical Specifications (TAC No. MB1292)," dated March 7, 2002 (ADAMS Accession No. 020330118).
2. Letter from R. Clark (NRC Project Manager) to G. Hunger (Director-Licensing, Phila. Elect. Co.), "Diesel Generator Testing (TAC No. 69578)," dated September 28, 1989.

4.3 No Significant Hazards Consideration

Constellation Energy Generation, LLC (CEG), has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92(c), "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

As a BWR/5 reactor design, the proposed change will bring Nine Mile Point, Unit 2 (NMP2), into alignment with NUREG-1434, Revision 5, following the guidance in Regulatory Guide (RG) 1.9, Revision 3, and the recommendations in Generic Letter (GL) 84-15. The proposed changes will revise Surveillance Requirement (SR) 3.8.1.2 to align with the "Start Test" testing criteria and create a new SR to perform the "Fast-Start" testing as described in RG 1.9, Revision 3. The industry and NRC-sponsored studies and correspondences over the years have indicated that emergency diesel generators are tested too often and that the frequency of surveillance testing can, and does, cause accelerated wear possibly leading to premature emergency diesel generator failures and reducing equipment reliability.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change does not introduce any new accident initiators, nor do they reduce or adversely affect the capabilities of any plant structure, system, or component to perform their safety function. The proposed changes will revise Surveillance Requirement (SR) 3.8.1.2 to align with the "Start Test" testing criteria and create a new SR to perform the "Fast-Start" testing as described in RG 1.9, Revision 3.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed changes conform to NRC regulatory guidance in NUREG-1434, Revision 5, regarding the content of plant Technical Specifications. The proposed change does not alter the safety limits, or safety analysis assumptions associated with the operation of the plant.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, CEG concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of no significant hazards consideration is justified.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

- 6.1 Generic Letter (GL) 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability, dated July 2, 1984.
- 6.2 Standard Technical Specifications-General Electric BWR/6 Plants: Specifications (NUREG-1434, Revision 5, Volume 1) dated September 2021.
- 6.3 Standard Technical Specifications-General Electric BWR/6 Plants: Bases (NUREG-1434, Revision 5, Volume 2) dated September 2021.
- 6.4 Regulatory Guide (RG) 1.9, Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plants, Revision 3, dated July 1993.

ATTACHMENT 2

License Amendment Request

Nine Mile Point Nuclear Station, Unit 2

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PROPOSED TECHNICAL SPECIFICATION MARKED-UP PAGES

3.8.1-6

3.8.1-18

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p data-bbox="721 323 886 369">NOTES</p> <p data-bbox="204 369 354 399">SR 3.8.1.2</p> <p data-bbox="756 369 850 394">NOTE</p> <p data-bbox="402 399 1122 504">1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.</p> <p data-bbox="443 569 1016 634">Verify each required DG starts from standby conditions and achieves:</p> <p data-bbox="443 674 1040 844">a. In ≤ 10 seconds, voltage ≥ 3950 V for Division 1 and 2 DGs and ≥ 3820 V for Division 3 DG, and frequency ≥ 58.8 Hz for Division 1 and 2 DGs and ≥ 58.0 Hz for Division 3 DG; and</p> <p data-bbox="443 884 1024 982">b. Steady state voltage ≥ 3950 V and ≤ 4370 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</p>	<p data-bbox="1162 548 1549 653">steady state voltage ≥ 3950 V and ≤ 4370 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz,</p> <p data-bbox="1162 674 1414 806">In accordance with the Surveillance Frequency Control Program*</p> <p data-bbox="1268 1079 1414 1104">(continued)</p>

* ~~Following return to OPERABILITY of the HPCS System, the past due Surveillances will be completed by January 18, 2019.~~

2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.19 must be met.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.18</p> <p>----- NOTE-----</p> <p>All DG starts may be preceded by an engine prelube period.</p> <p>-----</p> <p>Verify, when started simultaneously from standby condition, each Division 1, 2, and 3 DG achieves, in ≤ 10 seconds, voltage ≥ 3950 V for Division 1 and 2 DGs and ≥ 3820 V for Division 3 DG, and frequency ≥ 58.8 Hz for Division 1 and 2 DGs and ≥ 58.0 Hz for Division 3 DG.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

Add single line.

SR 3.8.1.19

-----NOTE-----

All DG starts may be preceded by an engine prelube period.

Verify each required DG starts from standby conditions and achieves:

- a. In ≤ 10 seconds, voltage ≥ 3950 V for Division 1 and 2 DGs and ≥ 3820 V for Division 3 DG, and frequency ≥ 58.8 Hz for Division 1 and 2 DGs and ≥ 58.0 Hz for Division 3 DG; and
- b. Steady state voltage ≥ 3950 V and ≤ 4370 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.

Delete double line.

In accordance with the Surveillance Frequency Control Program

Add double line.

ATTACHMENT 3

License Amendment Request

Nine Mile Point Nuclear Station, Unit 2

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PROPOSED TECHNICAL SPECIFICATION BASES MARKED-UP PAGES

Bases Pages:

B 3.8.1.18

B 3.8.1.19

BASES

SURVEILLANCE REQUIREMENTS (continued)

Where the SRs discussed herein specify voltage and frequency tolerances, the following summary is applicable. The minimum steady state output voltage of 3950 V is approximately 95% of the nominal 4160 V output voltage. This value, which is specified in ANSI C84.1 (Ref. 14), allows for voltage drop to the terminals of 4000 V motors whose minimum operating voltage is specified as 90%, or 3600 V. It also allows for voltage drops to motors and other equipment down through the 120 V level where minimum operating voltage is also usually specified as 90% of name plate rating. The specified maximum steady state output voltage of 4370 V is equal to the maximum operating voltage specified for 4000 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of 4000 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are 58.8 Hz and 61.2 Hz, respectively. These values are equal to $\pm 2\%$ of the 60 Hz nominal frequency and are derived from the recommendations given in Regulatory Guide 1.9 (Ref. 11).

SR 3.8.1.1

This SR ensures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected to their preferred power source and that appropriate independence of offsite circuits is maintained. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.1.2 and SR 3.8.1.19

These SRs

Notes (Note 1 for SR 3.8.1.2 and Note for SR 3.8.1.19)

This SR helps to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and maintain the unit in a safe shutdown condition.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, this SR has been modified by a Note to indicate that all DG starts for this Surveillance may be preceded by an engine prelube period. In addition, to minimize wear and tear on the DG, the Note

these SRs have

(continued)

New paragraph

and SR 3.8.1.19

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 (continued)

also allows all DG starts to be followed by a warmup period prior to loading.

New paragraph

For the purposes of this testing, the DGs are started from standby conditions. Standby conditions for a DG mean that the diesel engine coolant (Division 1 and 2 DGs only) and lube oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations.

In addition to the
SR requirements,
the

In order to reduce stress and wear on diesel engines, some manufacturers recommend that the starting speed of DGs be limited, that warmup be limited to the lower speed, and that DGs gradually accelerated to synchronous speed prior to loading. These start procedures are the intent of Note 2, which is only applicable when such procedures are recommended by the manufacturer.

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SR 3.8.1.2 requires that the DG starts from standby conditions and achieves required voltage and frequency within 10 seconds. The 10 second start requirement supports the assumptions in the design basis LOCA analysis (Ref. 15). ~~In addition, the DG is required to maintain proper voltage and frequency limits after steady state is achieved. The voltage and frequency limits are normally achieved within 13 seconds for the Division 1 and 2 DGs and within 15 seconds for the Division 3 DG. The time for the DG to reach steady state operation is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.1.3

This Surveillance demonstrates that the DGs are capable of synchronizing and accepting a load approximately equivalent to that corresponding to the continuous rating. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

Although no power factor requirements are established by this SR, the DG is normally operated at a power factor between 0.8 lagging and 1.0 when running synchronized with the grid. The 0.8 power factor value is the design rating of the machine at a particular KVA. The 1.0 power factor value is an operational condition where the reactive power component is zero, which minimizes the reactive heating of

The 10 second start requirement may not be applicable to SR 3.8.1.2 (see Note 2 of SR 3.8.1.2), when a modified start procedure as described above is used. If a modified start is not used, the 10 second start requirement of SR 3.8.1.19 applies. Since SR 3.8.1.19 does require a 10 second start, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2.

(continued)